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The Effects of Urban Green Spaces on Mental Health

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ABSTRACT

Urbanization has led to a decline in green spaces, which are essential for mental health and community well-being. This study examines the psychological benefits of urban green spaces, emphasizing their role in reducing stress, improving mood, and fostering social connections. By reviewing interdisciplinary research, the paper highlights how proximity to well-designed green spaces contributes to emotional resilience and social cohesion. The findings suggest that equitable and inclusive urban planning strategies should prioritize green infrastructure to mitigate health disparities and enhance overall public well-being.

Keywords: Urban green spaces, mental health, well-being, social cohesion, urbanization, community resilience, accessibility.

INTRODUCTION

People are moving to cities more than ever. By 2007, the tip point that started people living more in cities than rural areas occurred. As a result, urbanization is ever-increasing, and unfortunately, the natural world along with its greenery is the biggest victim of it. More people in higher density increases pollution, CO2 and lack of natural scenery. More land is going for residential and industrial use. There are also critical determinable health implications of such loss and neglect of the natural world. It is an essential research topic to understand how green spaces in urban areas affect human psychological life and emotional well-being and helps city planners and architects to make recommended actions to keep and increase urban green spaces. In contemporary societies, mental health is a critical issue. This issue shouldn't be measured only in the context of awareness and perception. There are also urban policies to control mental health. Changes in urban design and city planning can help create significant improvements in public health; however, these changes need to be supported by evidence-based approaches. Therefore, it is vital to recognize new ways of understanding and developing this kind of approach that are inherently interdisciplinary. The thesis will consider this discussion by focusing on the relationship between green built and mental and emotional health within the context of these broader debates and contributing to an urban design that gets public policy in this direction. This thesis will address this problem by looking at the effects of urban green spaces on psychological and emotional health through the urban design and city planning context. The study will operate on the evidence-based design approach, which manage interdisciplinary methods to understand the relationship between the built environment and public health. In conclusion, the main themes of the research and the structure of the thesis are discussed [1, 2].

Understanding Urban Green Spaces

Urban green spaces are defined as parks, gardens, or other types of natural environments in urban areas. There are various types of urban green spaces, such as private gardens, parks, cemeteries, abandoned lands, allotment gardens, street trees, or public sport facilities. By understanding this diversity, the role and significance of green spaces in urban settings can be better understood. The focus is on characterizing not only the physical attributes of green spaces, but also their functional aspects. The functional dimension of urban green spaces, which relates to the relationships between people and the natural environment, is typically based on the concept of ecosystem services. These relationships can be understood through the nature that is experienced, lived or observed within cities. Urban green spaces provide the main physical environments where nature is present or introduced. Green spaces are the most important resources for maintaining and enhancing these relationships with nature in cities. This

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emphasizes the relevance of the aspects of green spaces that can (a) host nature, (b) make it visible, and (c) facilitate access to those in the way it is experienced, lived or observed. Studies of urban green spaces generally indicate that they differ in terms of the physical characteristics of the vegetation or landscapes that are present or can be developed, maintained, or managed within urban areas. The relatively well-understood effects of natural places on mental well-being and health can improve spatial planning and the design of urban green spaces in various regions, including European cities, or those in other cultural, socio-demographic, or political contexts and historical settings that differ from the so-called Western North-American or European contexts [3, 4].

Definition and Types

In recent years, urban green spaces have become a solution for creating healthier and greener cities. From parks to green roofs on buildings, these spaces offer a diversity that provides social, ecological, and health benefits. As a result, the classification of urban green spaces into types is a wide field that contributes to understanding their different contributions to urban life. Furthermore, many discussions about urban green spaces assume different definitions, nuances which are highlighted in this text. Compared to urban nature and blue spaces, green spaces are a more general term that refers to the non-built environment covered by vegetation for public or private use. Green spaces create ecosystem services or just ecologically beneficial spaces, which may exclude green walls. However, open spaces which are often paved or built with ecological materials and aesthetic green walls form valuable recreational opportunities in the urban environment. Based on this definition, public parks, community or allotment gardens, botanical or natural gardens, and urban forests may be considered as types of green spaces. Nevertheless, these types may significantly differ in the way they are used, accessibility, and also the benefits they can provide. On a similar note, a definition of urban implies that cities and towns are a changing environment where green spaces might be more a product of community efforts in the case of community gardens rather than formal plans or design that make a separation from nature and urban environments [5, 6].

Mental Health Overview

Mental health encompasses more than the absence of illness or unhappiness; it signifies overall well-being tied to an individual's realization of their innate potential. This concept includes engaging proactively in society and contributing positively, especially amid challenges. It is a state where individuals manage stress, recognize their abilities, and function productively. Mental well-being is crucial alongside physical health and encompasses emotional, psychological, and social aspects, influencing thoughts, feelings, actions, stress responses, and relationships. Biologically, mental health is affected by neurotransmitters and hormones that influence mood and thought, with genetics significantly impacting predispositions. Environment also plays a vital role, as societal structures can disadvantage certain mental states. Personal experiences and societal interactions can worsen mental disorders, where limited access to mental health resources and persistent stigma precipitate declines in well-being. Approximately 15% of adults aged 18-30 experience mental illness, which often relates to prevailing societal constructs. The Environmental Protection Agency identifies several social determinants affecting mental health, notably access to health services, impacting 32.7% of the untreated population. Despite availability, barriers such as insurance issues, time constraints, and provider shortages hinder access to care, disproportionately affecting those in lower-income brackets, resulting in poor living conditions that further impair mental health [7, 8].

Definition of Mental Health

To understand the effects of urban green spaces on mental health, it is crucial to explore the specific definitions surrounding mental health. Mental health is a dynamic state of total well-being where individuals flourish, intellectually develop their abilities and skills, build productive relationships, and actively contribute to community development and cultural diversity. This holistic definition includes having emotional steadiness and intellectual flexibility, as well as an understanding of and satisfaction with one's world. This definition is vital because broader criteria for mental health can measure an individual's personal growth rather than simply the absence of mental illness. As a profession concerned with psychology, mental health counselors, social workers and psychologists have many frameworks for recognizing mental well-being, such as the World Health Organization's Mental Health Continuum. According to this model, a person's mental health may be considered good, adequate, or inadequate. Good mental health is seen as a combination of high levels of emotional, psychological, and social well-being. The realization that mental health is both clinical terms and everyday experiences is crucial, though since mental distress is generally subjective, it is not possible to set a particular value. Mental health is globally acknowledged to constitute a complete state of concern. However, it is difficult to agree on a specific definition cross-culturally because it can be described differently across cultures and contexts. A one-size-

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fits-all definition doesn't necessarily apply to every population, which could make international comparisons problematic. It is important to realize that each culture sees mental health and mental disorder differently. Recognition is an ongoing system to promote and legitimize the use of the cultural definitions of health and illness and to improve the dealing with this knowledge by health care professionals in cross-cultural situations. Moreover, there is a movement promoting the understanding that mental health and mental illness are not opposites, but often two concurrent sides of the same coin, which helps to destigmatize mental health issues. Understanding the nuances of mental health is essential to reflect on what types of interventions and supports are necessary to ensure a mental health–thriving society [9, 10].

Impact of Nature on Well-Being

Over the past few decades, there has been growing interest in nature's restorative role and its effects on individuals' mental well-being. A large body of research has investigated the mechanisms of how exposure to natural environments can influence stress reduction, mood improvement, and stress coping. This evidence supports the idea that nature has a significant impact on people, especially for those who reside in urban areas or work under conditions with limited nature exposure. Individuals continue to report enhanced mood and feelings of pleasure following a nature experience. Much research has confirmed the positive psychological outcomes of nature in promoting an increase in positive mood states and decreasing negative ones. These effects of nature are consistent among varied groups across different ages, genders, cultures, and occupations. Moreover, the significant impact of nature on mental health is found to be both direct and indirect. It underlies the necessity of considering both perspectives to get a more comprehensive and thorough understanding of how and to what extent nature impacts on mental well-being, in order to expand the implications of sectors such as public health, urban design, and mental health therapy. With cities rapidly expanding and densely populated, however, urban dwellers are often far away from rural or wild nature environments. To mitigate this trend, urban green spaces and elements such as city parks, rooftop gardens, and street trees are being advocated and implemented in numerous metropolises. Research on urban green spaces provides some evidence that urban dwellers also benefit from the close where they work or live. Study finds that viewing inner-city horticultural scenes can increase feelings of unity with nature and wholeness in self-identity and decrease feelings of fragmentation and isolation from the environment. Nevertheless, a major concern is that the availability of green spaces in urban areas remains limited. Most cities face great challenges in improving their entire green infrastructure. Moreover, with constant population growth and demand for housing, available green spaces in many urban cities are shrinking over time. Thus, securing and improving a personal and public green space plays a crucial role in urban planning to ensure accessibility to greenery and its associated well-being for an urban population. Mayor cities in crowded urban contexts benefitting a much larger population on a daily basis, as they can develop and enhance physical and mental health honestly also fostering a sense of community well-being that's experience of safety and security [11, 12].

Psychological Benefits

Nature is recognized for its mental health benefits, including mood enhancement, reduced anxiety, and improved overall mental health. Green spaces are essential for urban populations facing stressful city life, promoting social interactions and community bonding. These areas can lower stress levels through the presence of greenery, offering a psychological refuge in densely populated urban settings. Proximity to green areas encourages community relationships and outdoor engagement, which are crucial for coping with modern challenges. Incorporating green spaces into urban design is advocated for better mental health outcomes. Urban noise can negatively impact well-being, while green areas provide a restorative environment that mitigates these effects. The public health benefits of nature extend to psychological aspects, fostering creativity, calming effects, and enhanced cognitive functions. In multicultural cities, high-density living often leads to a frantic pace of life. The Covid-19 pandemic further restricted access to parks, exacerbating the necessity for urban greenery as a potential strategy to avert mental health crises. This study emphasizes urban green spaces—parks, gardens, and open areas with greenery—distinct from broader natural environments. It aims to analyze current literature on green spaces and their impact on human well-being, identifying gaps for future research. Ultimately, this understanding aims to inform urban planning and policy to utilize green spaces effectively in promoting health and well-being [13, 14].

Physiological Benefits

Human's physical health can benefit different aspects from exposure to urban green space, including a decrease in negative health outcomes, such as fewer instances of cardiometabolic conditions and long-term stress. As major physical health outcomes of time spent in nature exposure, firstly, Green space exposure can contribute to a reduction in blood pressure and improvement in heart health.

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Understanding of this topic is crucial as physical health is closely related to psychological well-being. In addition to the findings of decreased blood pressure and improved heart health, Contact with nature may also influence elements associated with the immune system, which can all be linked to wider constructs of emotional and mental well-being. Biophilia hypothesizes an innate human connection to the natural world, which is claimed to have significant implications for devising healthier environments. Regarding the improvement of urban quality of life, it is noteworthy that people have an innate striving for contact with life and nature [15, 16].

Urban Green Spaces and Mental Health

The cornerstone hypothesis of this research is that urban green spaces can promote psychological well-being. While there is an increasing corpus of inductive work that investigates the impact of urban green spaces on mental health and psychological well-being, most research focuses on neighbourhood greenness or residential proximity to urban green spaces. This has given rise to two additional problems that remain largely unexamined by researchers: (1) how does exposure to urban green spaces improve mental well-being indicators, and does the effect of proximity to urban green spaces on these indicators differ by socio-demographic groups; (2) What is the impact of different forms of green space on mental health and is increased public advocacy for the accessibility and quality of urban green spaces to improve mental health and health equity? This research addresses these gaps by empirically studying the direct link between urban green spaces and a range of mental health and psychological well-being indicators. This work also rigorously evaluates how the effects of proximity to urban green spaces on these indicators differ by various groups. Together, this work sheds light on some of the complex processes that underlie the beneficial psychopathological effects of urban green spaces [17, 18].

Empirical Studies

As the 21st century unfolds, urbanites globally experience ever-increasing pressures on mental health. A significant portion of the world population dwells in cities, where prevalence rates of multiple mental disorders, such as major depressive disorder and anxiety disorder, are much higher than in rural areas. Inefficient coping with these challenges could incur considerable social and economic costs, such as loss of work productivity and years of life due to disabilities. The built environment of urban areas shapes and interacts with such problems. Green spaces comprise essential neighborhood elements that determine urban landscapes and hold great potential to foster public well-being, particularly mental health. Nevertheless, empirical research on this issue has demonstrated mixed results, possibly due to various geographic, contextual, and methodological discrepancies. Empirical studies demonstrating the association between urban green space access and mental well-being are carefully reviewed. Several conclusions are drawn that validate such association. A discussion of the methodologies adopted in these studies follows, finding that this association withstands a wide array of research designs. It becomes evident, however, that research results are mixed. The amplified population, setting, and measurement discrepancies can partially account for the contrary findings. Therefore, a more multisided evidence base is necessary to further explore these relationships. Various additional arguments are forwarded to encourage more rigorous research and interdisciplinary approaches. This view may be meaningful in evidencing the vital roles that urban green spaces could play in psychological health, thereby driving more effective landscape planning, public health initiatives, and ecological movements to adopt or enhance their local green spaces [19, 20].

Social Interactions and Community

Urban green spaces provide venues for social interactions and other forms of community engagement. Public parks, community gardens, and street trees are places of commonality, bringing people together to celebrate, interact, and make a variety of connections. By fostering social connections and underpinning social cohesion, green spaces can build community resilience. Nature as a backdrop for shared experiences facilitates social interactions and enhances informal conversations between community members. Collective endeavours provide a common ground that results in a sharing of narratives, designs, and meanings and a creation of opportunities to increase interpersonal relationships and a sense of belonging. Community events held in green spaces can help create a lively and sociable atmosphere that stirs a crowd feeling. These spaces have the potential to frame social interactions, turning them more likely into long-lasting social bonds and creating social capital. This bonding will foster a higher level of social cohesion and feelings of safety and belonging, buffering the impact of external shocks and contributing to community well-being. When correctly designed, public spaces have the potential to frame and structure social activities, hence supporting and enhancing social cohesion, safety, and well-being in general. Urban green spaces can play a central role in mitigating social isolation and fostering social contacts between marginalized groups. In order to guarantee a more inclusive use, inclusive design principles should be

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applied during the design stage, taking into consideration the needs of the vulnerable and typically excluded segments of the population. This concern for the most fragile members of the community is of vital importance to promote a broad-based use of green spaces, tackle social inequalities, and diversify the range of benefits accessible to all. In this way, green spaces and urban forests can enhance the creation and development of social support networks, encompassing daily interactions and significant relations designed to assist them in times of need and difficulties, increasing community well-being. Contrarily, an inability to reconstruct lost social connections in extreme events typically leads to grieve and a higher rate of migration, exacerbating community fragility [21, 12].

Role of Green Spaces in Community Building

Urban green spaces not only transform physical areas but also foster community building. A co-sustained green space, where residents determine placements for benches or trees, sees greater care and use. Such spaces are crucial for communities with strong ties, promoting participation in shared areas. Bestgreen in Istanbul exemplifies this, uniting residents across diverse backgrounds through conversation and play. Local efforts in Istanbul, such as greening streets, inspire similar projects worldwide. Engagement from residents is essential for monitoring public spaces. In urban settings, neglected areas go unnoticed, particularly in high-crime zones, where well-placed green spaces can enhance safety. Community-driven green initiatives foster a sense of ownership, addressing underutilization of top-down public spaces. Well-kept green areas serve diverse social uses, reducing fears and becoming community hubs. Strategic planning enhances accessibility, but welcoming designs and programs are vital. Integrating small-scale retail can enhance social fabric, as seen in Gowanus' "Greening the Gates" campaign. Coordination and targeted programs can weave green spaces into privatized urban fabrics, combating inequality and isolation. The environment influences social interactions, making urban green spaces critical for healthier communities. Recognizing their broader potential can guide management strategies. To mitigate disparities, investments should prioritize communities that will benefit most, promoting health and well-being for all. As urban populations grow, green spaces are vital for a pleasant, healthy environment, mitigating pollution and promoting social interaction. They significantly affect happiness and community security, necessitating a robust strategy for their planting and maintenance [22, 23].

Barriers To Access

Urban green spaces (UGS) have gained attention for their mental health benefits, improving stress and depression. Research methods such as surveys and interventions have explored this relationship, highlighting the need for effective UGS planning and management to maximize these benefits. Despite evidence of positive effects on mental health, many residents face barriers that hinder access to UGS. Rapid urbanization has led to denser populations and competition for land, creating challenges in UGS availability. As a result, many urban residents live far from green spaces, limiting their benefits. Interestingly, those living close to UGS may be less likely to use them due to limited leisure time or outdoor activity participation. Factors such as gender, age, income, education, and family size contribute to UGS-seeking behavior. Further research into the varied behaviors of urban residents regarding green space access is essential. These insights can guide urban planning and public policy, enhancing UGS usage and enjoyment. Common barriers include socio-economic status, cultural factors, and inadequate facilities. Residents have noted that privately owned parks and unused areas are the least accessible. In contrast, green spaces close to home, such as gardens and community land, are frequently utilized. There is a desire for more greening around residential buildings and ecological gardens. While previous studies have established a link between green spaces and mental health, they often overlook the spatial scale's impact on health outcomes. Additionally, few have analyzed the micro-level relationship between public green spaces and health, leaving substantial gaps in understanding how various urban green areas affect well-being [24, 25].

Socioeconomic Factors

Lower-income and less-educated individuals generally face poorer health outcomes, including mental health issues, partly due to inadequate housing. Deprived areas typically have fewer parks, and while some urban regeneration efforts create well-serviced open spaces, residents in these neighborhoods experience lower stress reduction. The quality and availability of domestic gardens influence various health outcomes. Urban design interventions can enhance mental health benefits of green spaces, and the social use of parks and gardens is crucial for sustaining these impacts. Green spaces promote mental well-being, linked to visits to these areas and a psychological connection to one's home. Research in deprived neighborhoods highlights that material hardships lead to greater mental health deficits. However, residing in environments with access to green spaces can alleviate some of these challenges. Often, urban populations in deprivation face barriers to mental well-being, including limited access to green areas.

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Longitudinal studies indicate a positive (lagged) correlation between the presence of green space within 1 km of residences and mental well-being, though this trend is weaker for those in the most deprived settings. The mental health of disadvantaged groups in low-green neighborhoods is notably poor. These insights stress the importance of policies that connect socio-economically deprived urban communities to well-designed green spaces for rest and recovery [26, 27].

Designing Effective Green Spaces

Urban Green Spaces (UGS) are crucial as urban areas grow denser. For UGS to be effective, they must be safe, accessible, and cater to diverse local needs, thus requiring aesthetic and programmatic improvements. The public health framework includes a Situational Assessment, Design Principles, and Health Benefits Summaries, emphasizing UGS's role as a global public health intervention for all demographics. The WHO encourages planners to create safe and high-quality green spaces, engaging community members actively in the design process, which necessitates collaboration between housing, health authorities, and landscape architects for creative solutions and financial support. Young people inherently value green spaces; thus, creating play areas and involving them in planning enhances their appreciation. This report advocates for immediate action to leverage the health benefits of UGS and recognize their inherent environmental value. To sustain green spaces as public health interventions, comprehensive maintenance provisions are essential, possibly through appointing a park ranger. The report presents five case studies showcasing successful public health frameworks and design tools that address public health threats. However, the complexity of analyzing the effects of various green exercise interventions complicates intervention design, while safety concerns can deter use and negatively impact mental health. Despite this, certain green space features may mitigate adverse effects, presenting opportunities for health-based interventions. Rapid urban growth poses significant social and physical challenges, highlighting the need for urban planning focused on enhancing residents' well-being. Numerous studies indicate that access to urban green and public spaces fosters positive physical and mental health effects. This study, based on an older urban population, evaluates UGS design's impact on mental health by analyzing users' perceptions and heart rate variability. UGS positively influence mental health, establishing green spaces as vital health infrastructure. Nonetheless, optimizing UGS design for these benefits remains complex, necessitating attention to the diverse characteristics of local populations, including age and daily activities [28,29, 30, 31].

Key Design Principles

Safer and Comfortable Places: Green spaces need to be safe, accessible, and welcoming to all community members. Spaces should remain visible and open. Designed with Many Functions: Cater to a variety of activities, functions, and age groups. Consider establishing playgrounds and seating places, making spaces suitable for activities for all ages. Navigable and Accessible: Urban green spaces should be connected by navigable paths and accessible to anyone regardless of their disabilities.

The Presence of Natural Elements: Incorporate more trees, water features, parks, and native plants in urban green spaces. Humans have innate tendencies to seek connections with nature. Support Social Interactions and Engagement: Urban green spaces can act as meeting places, increasing social interactions. Establishing community gardens creates a space for residents to be engaged within the space.

Adaptive to Changes Over Time: Ensure that urban green spaces are designed with flexibility in mind, providing space usage for diverse activities. Over time, the space could be re-adapted based on different neighborhood needs and circumstances. Greener environments can have a beneficial effect on human mental health and wellbeing, and the ongoing urbanization calls for the provision of urban green spaces (UGS) to enhance public health. Not only is it a pleasant view, but greenery can also be a part of lifestyle activities associated with health and wellbeing. Despite the evidence of the relationship between UGS and mental health benefits, it is still rarely incorporated by urban planners into design, particularly for multifunctional facilities. This subsection aims to enhance wellbeing by identifying key design considerations necessary for meaningful urban green space intervention to improve mental health while providing environmental co-benefits. Effective interventions have been proposed across a variety of infrastructural forms: small interventions incorporating tree retrofitting, large interventions involving the installment of green corridors, walls, or roofs, and UGS. Collectively, they recommend specific design interventions combining health and climate resilience co-benefits in a user-friendly decision-making format tailored to UGS design. Historically, green spaces in the U.S. were small and designed to serve the singular functions preferred by specific segregated populations targeted by the establishment. This model continues to dominate, lacking multifunctional facilities. Community and public health benefits, such as mitigating health inequities and enhancing social cohesion, require more thoughtful UGS design, in turn

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demanding thoughtful planning efforts. Since landscape architects and urban planners are the primary decision-makers in UGS design, the incorporation of interventions to amplify mental health benefits is feasible. It is important for urban planners to understand the implications of communication designs. UGS planners seldom design green spaces that can improve physical health, psychological wellbeing, and social cohesion [32, 33, 34].

CONCLUSION

Urban green spaces play a crucial role in promoting mental health and fostering social well-being. Accessible and well-maintained green areas reduce stress, enhance mood, and encourage community engagement. However, barriers such as socio-economic disparities and inadequate urban planning hinder their benefits. To maximize their impact, cities must integrate inclusive, multifunctional, and equitable green spaces into their urban frameworks. Investing in such infrastructure is essential for improving mental health outcomes and reducing health disparities, ultimately contributing to more resilient and healthier urban communities.

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